WHAT IS CLAIMED IS:

1. An optical monitoring system for monitoring thin film deposition on a substrate, said system comprising:

a support bridge configured to be attached on an inside of a deposition chamber;

a first fiber optic collimator coupled to said support bridge;

a first fiber for incoming light coupled to said first fiber optic collimator; and

a second fiber for outgoing light optically coupled to said first fiber optic collimator.

2. The optical monitoring system of claim 1, further comprising:

a substrate holder configured to hold the substrate; and

a first shutter that prevents incoming deposition material from contacting at least a first portion of the substrate.

3. The optical monitoring system of claim 1, wherein said first fiber optic collimator comprises a two-fiber ferule that is coupled to said first fiber and said second fiber, wherein said second fiber transmits reflected light.

4. The optical monitoring system of claim 1, further comprising:

a second fiber optic collimator coupled to said second fiber, wherein said second

fiber transmits transmitted light.

5. The optical monitoring system of claim 1, further comprising:

a second fiber optic collimator coupled to said second fiber, wherein said second fiber transmits reflected light.

6. The optical monitoring system of claim 1, wherein said first fiber optic collimator comprises a GRIN lens.

7. The optical monitoring system of claim 6, wherein said first fiber optic collimator comprises a tap optical filter and an alignment glass rod.

8. The optical monitoring system of claim 1, wherein the substrate comprises a monitored area that is monitored by collimated light from said first fiber optic collimator.

9. The optical monitoring system of claim 1, further comprising:

a strobe signal generator coupled to said support bridge.

10. The optical monitoring system of claim 2, further comprising:

a second shutter that prevents incoming deposition material from contacting at

least a second portion of the substrate.

11. The optical monitoring system of claim 2, wherein said first shutter is closed when a predetermined optical thickness on the substrate is reached.

12. The optical monitoring system of claim 11, wherein a determination is made that a predetermined optical thickness on the substrate is reached using an iterative process that includes a calculation of a predicted optical thickness.

13. The optical monitoring system of claim 1, wherein said first fiber and said second fiber are comprised of a single fiber, and further comprising a beam splitter coupled to said single fiber.

14. A thin film substrate deposition device comprising:

a deposition chamber;

a support bridge coupled to said deposition chamber;

a first fiber optic collimator coupled to said support bridge;

a first fiber for incoming light coupled to said first collimator;

a second fiber for outgoing light optically coupled to said first fiber optic collimator;

a substrate holder coupled to said deposition chamber; and

a first shutter coupled to said deposition chamber that prevents incoming deposition material from contacting at least a first portion of the substrate.

15. The thin film substrate deposition device of claim 14, wherein said first fiber optic collimator comprises a two-fiber ferule that is coupled to said first fiber and said second fiber, wherein said second fiber transmits reflected light.

16. The thin film substrate deposition device of claim 14, further comprising:

a second fiber optic collimator coupled to said support bridge, wherein said second fiber transmits transmitted light.

17. The thin film substrate deposition device of claim 14, further comprising:

a second fiber optic collimator coupled to said support bridge, wherein said second fiber transmits reflected light.

18. The thin film substrate deposition device of claim 14, wherein said first fiber optic collimator comprises a GRIN lens.

19. The thin film substrate deposition device of claim 18, wherein said first fiber

optic collimator comprises a tap optical filter and an alignment glass rod.

20. The thin film substrate deposition device of claim 14, wherein the substrate comprises a monitored area that is monitored by collimated light from said first fiber optic collimator.

21. The thin film substrate deposition device of claim 14, further comprising:

a strobe signal generator coupled to said support bridge.

22. The thin film substrate deposition device of claim 14, further comprising:

a second shutter that prevents incoming deposition material from contacting at least a second portion of the substrate.

23. The thin film substrate deposition device of claim 14, wherein said first shutter is closed when a predetermined optical thickness on the substrate is reached.

24. The thin film substrate deposition device of claim 23, wherein a determination is made that a predetermined optical thickness on the substrate is reached using an iterative process that includes a calculation of a predicted optical thickness.

25. The thin film substrate deposition device of claim 14, wherein said first fiber and said second fiber are comprised of a single fiber, and further comprising a beam splitter coupled to said single fiber.

26. A method of optically monitoring thin film deposition on a substrate comprising:

transmitting incoming light through a first optical fiber in a first fiber optic collimator onto a monitored area of the substrate;

receiving reflected and/or transmitted light from the monitored area through a second optical fiber in a second fiber optic collimator;

determining if a desired thin film thickness is reached based on the received light; and

closing a shutter over at least a portion of the substrate if the desired thin film thickness is reached.

27. The method of claim 26, further comprising:

generating a strobe signal from a mark on the substrate.

28. The method of claim 26, further comprising:

iteratively determining if the desired thin film thickness is reached by calculating a predicted optical thickness.